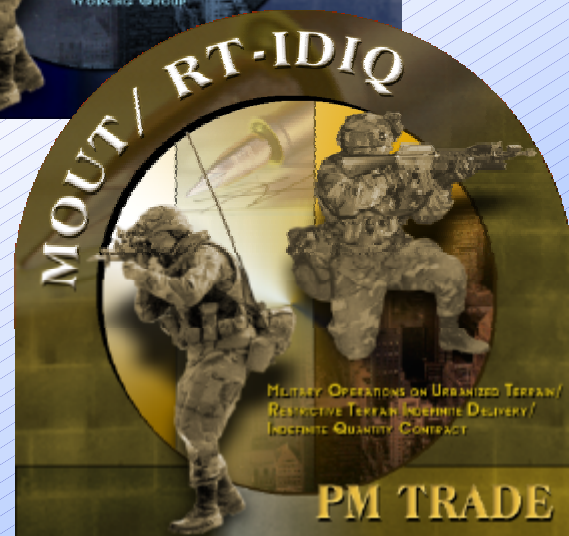




Military Operations on Urbanized Terrain/Restrictive Terrain (MOUT/RT)

COMMON ARCHITECTURE





INHERENT FEATURES

- **Modular approach**
 - **Commercial Best Practices**
 - **COTS/GOTS solution**
 - **Facilitates new technology insertion without affecting infrastructure.**
 - **Supports adding MOUT/RT capabilities incrementally**
 - **Scalable while in use**
 - **Plug and Play**
 - **Distributed instrumentation**
 - **Supports Constructive & Virtual Linkages**
- **Promotes Life Cycle Support**



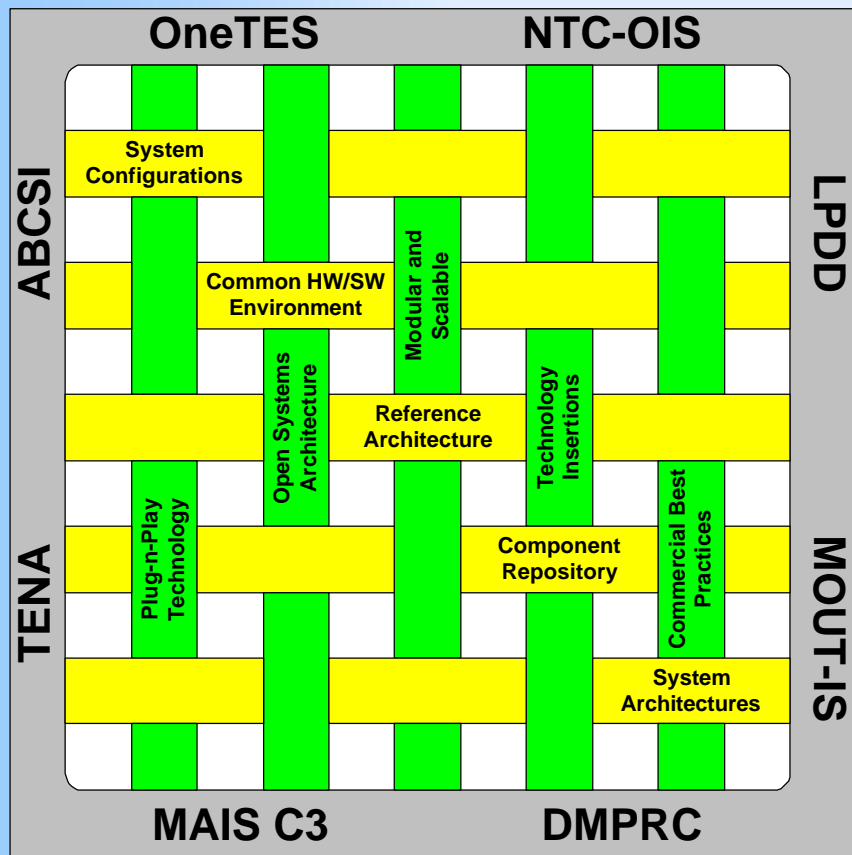
SUBSYSTEMS

- **Integrated Management System (IMS)**
 - Operator Stations
 - IMS Infrastructure
 - External Interfaces
- **AAR System**
 - Presentation Development
 - A/V Editing
 - Presentation
- **Video Monitoring System (VMS)**
 - Interior
 - Exterior
- **Audio System (AS)**
 - Input
 - Output
- **Targetry/Engagement System (T/ES)**
- **Discrete & Analog Devices**
 - Panic Buttons
 - Motion Detectors
 - Door Lock Control
 - Controlled Lighting
 - Total Darkness Illumination
- **Battlefield Effects System (BES)**
 - Pyrotechnical
 - Non-Pyrotechnical



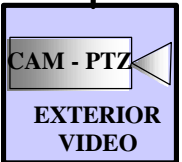
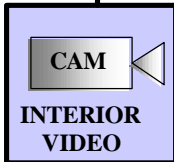
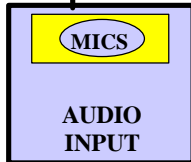
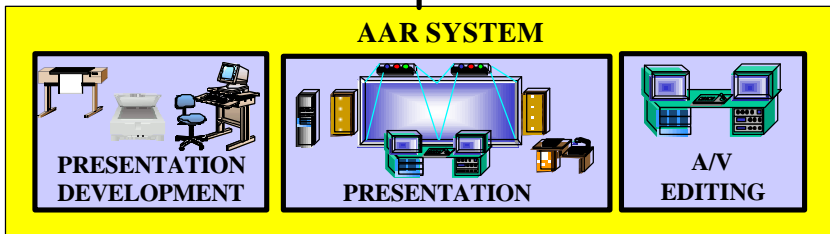
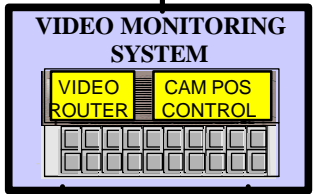
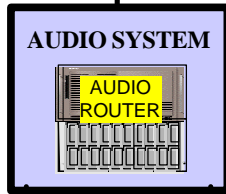
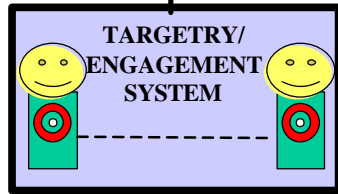
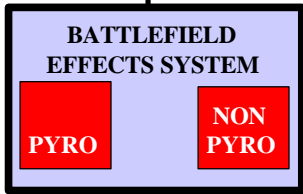
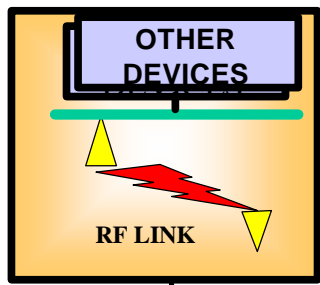
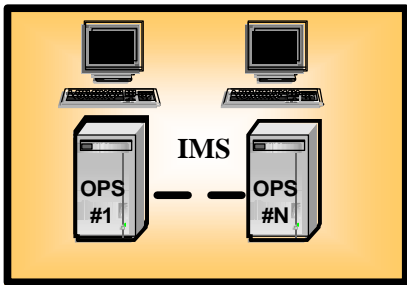
MOUT/RT Common Architecture and CTIA

Common Training Instrumentation Architecture (CTIA)



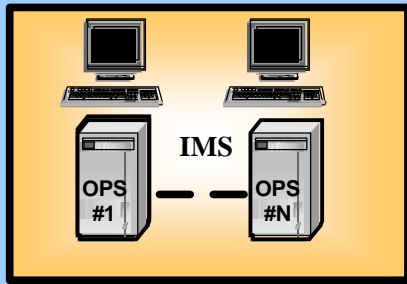
MOUT COMMON ARCHITECTURE

- The MOUT/RT Common Architecture is a subset of the CTIA
- The MOUT/RT Common Architecture is fully compliant and integrated with the CTIA
- As part of the CTIA, The MOUT/RT Common Architecture is leading the path for the Product Line



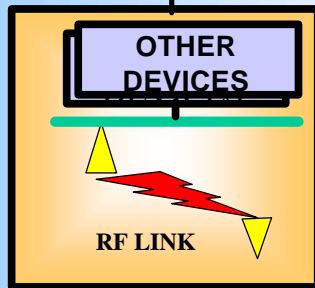
Integrated Management System (IMS)

Provides control, interface and distribution to all components in the system



•**Operator Stations:** These stations are the workhorses which provide the system status, command, and control of the exercise, devices, and interfaces.

Instrumentation Infrastructure -- Fiber Optic (Ethernet/Firewire)



•**IMS Infrastructure:** Provides a recording system (analog or digital) and a wide band fiber optic backbone for audio, video and data distribution throughout the facility and beyond. Higher availability can be achieved with the addition of UPS and Archival systems.

•**External Interfaces:** Provides access to external gateways (e.g. Tactical Networks, Constructive/Virtual Simulation, Position Location, LAN/WAN)

IMS Infrastructure & External Interfaces

A/V
RECORDING
SYSTEM

A/V
TRANSPORT

A/V&DATA
ARCHIVE

POSITION
LOCATION

FACILITY
LAN

TACTICAL
AUDIO/IP
NETS

HLA/IP
GATEWAY

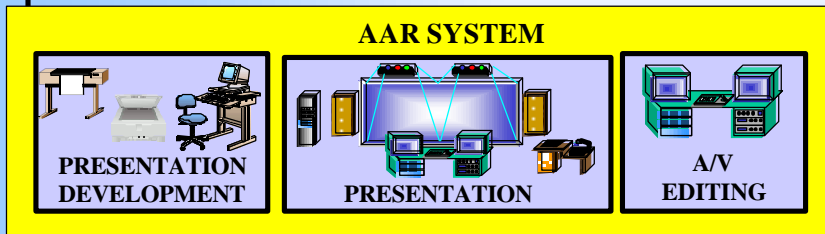
After Action Review (AAR) System

Provides the tools that generate AAR's

- Presentation Development** - Consists of graphics workstations and graphics peripherals for the preparation of the AAR (e.g. maps, charts, presentation slides).

Instrumentation Infrastructure -- Fiber Optic (Ethernet/Firewire)

- A/V Editing** - Provides clip and special effects editing for the preparation of the master video program for use in the After Action Review (AAR).
- Presentation** – Equipment and software that is used to display and control the presentation. This equipment includes graphic display workstations, document cameras, projectors and screens, media control podiums, switching and routing devices, and other production equipment.



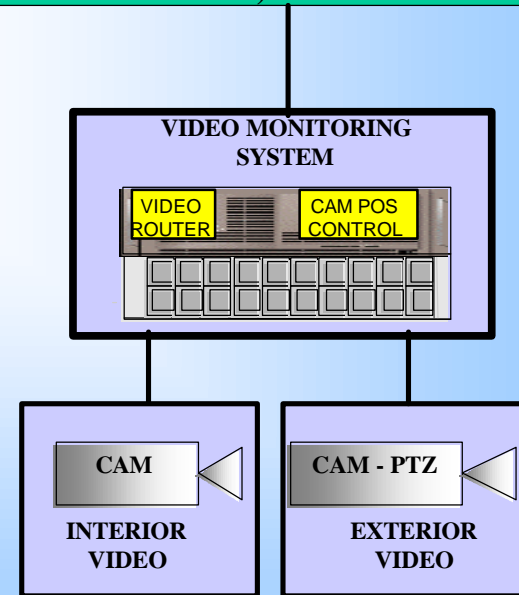
Video Monitoring System

Provides video for day or night operation

- **Interior** - Environmentally enclosed cameras connected to a matrix switcher controlled by the Instrumentation Control System. All cameras are housed in bullet-proof environmental enclosures for Live Fire installations.

Instrumentation Infrastructure -- Fiber Optic (Ethernet/Firewire)

- **Exterior** - Environmentally enclosed cameras with pan, tilt, zoom, focus, etc., as required, controlled from the Operator Control Station.



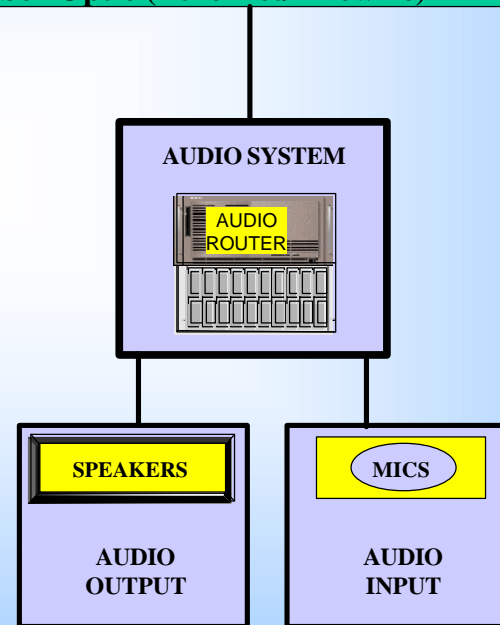
Audio System

Provides required audio capabilities

•**Input** - Allows the recording of all ambient audio in the interior rooms of all buildings and the exterior areas of the exercise range.

Instrumentation Infrastructure -- Fiber Optic (Ethernet/Firewire)

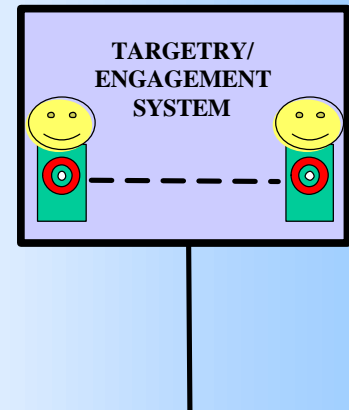
•**Output** - Distributes Sound Effects, paging and emergency announcements to individual zones, groups of zones or all zones in the exercise range.



Targetry/Engagement System

Provides a networked system of IMS controlled or observer controlled stand-alone targets. Optional target enhancements include:

- 2D or 3d automated targets in various deployment configurations (pop-up, drop down, swing-out, or suspended).
- Capable of feedback (hit status, thermal signature, position, MILES shoot back, etc.)
- Fixed or moving installation.



Instrumentation Infrastructure -- Fiber Optic (Ethernet/Firewire)

Discrete & Analog Devices

Provides control interface for discrete and analog devices

Motion Detector – Sensors to monitor the presence of personnel throughout the range for exercise management.

Panic Button - Accessible mushroom safety switches which alert the Operator Control Station of an emergency. Can be used to automatically activate emergency devices through the Integrated Management System.



Instrumentation Infrastructure -- Fiber Optic (Ethernet/Firewire)

Door Lock Control - Magnetic locks and door position switches for controlled access to all buildings during live fire exercises.

Total Darkness Illumination – Low band illuminators for interior illumination during filming video in total darkness. The illumination is compatible with night vision devices.

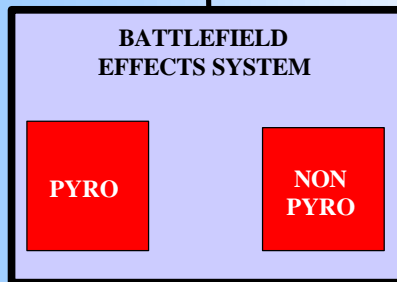
Controlled Lighting – Interior and/or exterior lighting controlled through the Integrated Management System.

Battlefield Effects System

Provides sight and sound realism to the exercise

- Pyrotechnic** - Operator Controlled special effects (e.g. bullet strikes, explosions, gun fire)

Instrumentation Infrastructure -- Fiber Optic (Ethernet/Firewire)



- Non-Pyrotechnic** – Operator Controlled Smoke Generators to flood any room with non-toxic white smoke and Sound Effects (e.g. screaming, dog barking, gunfire) distributed to specific areas.



CONCLUSION

- **This architecture will support the present and future requirements of MOUT/RT.**
 - **Affordable, Modular, and Scalable through a Plug & Play capability.**
 - **Standardizes MOUT/RT sites which supports future interoperability.**
 - **Promotes life cycle support.**